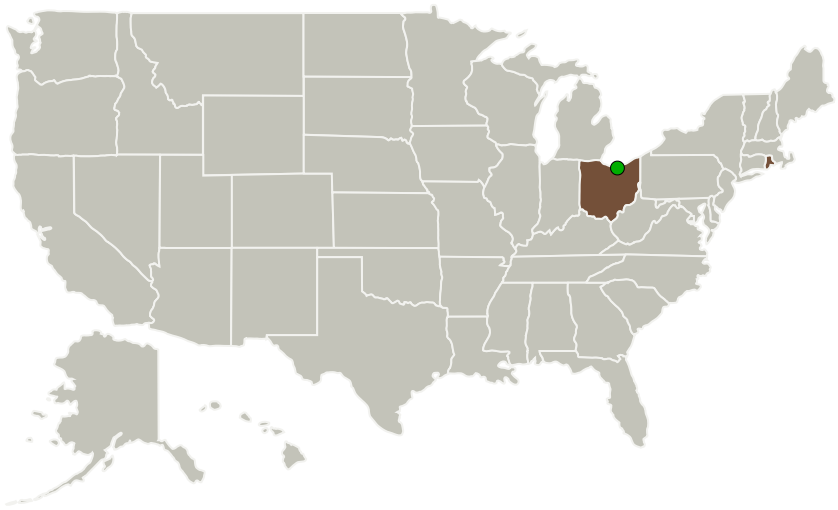
A Lithium-Air Battery with a High Energy Air Cathode, Phase I

Completed Technology Project (2011 - 2011)

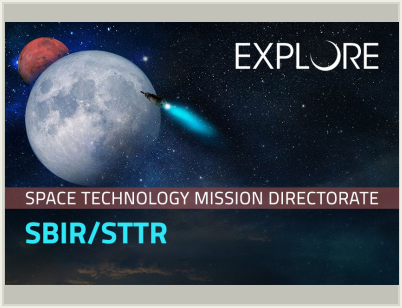
Project Introduction

This project will advance an efficient and lightweight energy storage device for Oxygen Concentrators by developing a high specific energy lithium-air cell. Specifically the project advances high specific energy cells by focusing on the catalysts in the cathode and anode protection of our existing cells under various oxygen atmospheres for NASA applications. Our high-energy air cathodes will be improved upon and incorporated into the cell designs. Several different chemically composed air cathodes will be investigated. Lithium-air cells produce power by the lithium reacting with the oxygen in the cathode. The anticipated result of the phase 1 project is a bench top operational cell (TRL4). Advantages of the proposed lithium-air cell include a high energy density, safe and lightweight design, and a high energy density cathode.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Yardney Technical Products, Inc.	Lead Organization	Industry	East Greenwich, Rhode Island
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



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Primary U.S. Work Locations	
Ohio	Rhode Island

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137824)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Yardney Technical Products, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

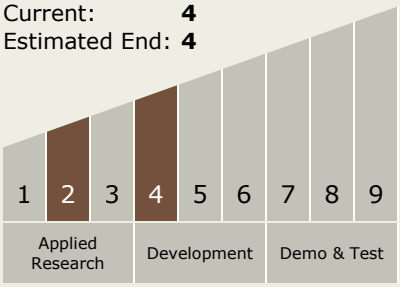
Carlos Torrez

Principal Investigator:

Arthur Dobley

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.2 Energy Storage
    - TX03.2.1 Electrochemical: Batteries

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System